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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/822,220	04/02/2001	Yoshio Kajiura	0020-4829P	1095

2292 7590 11/15/2002

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EXAMINER

TSANG FOSTER, SUSY N

ART UNIT	PAPER NUMBER
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1745

4

DATE MAILED: 11/15/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/822,220

Applicant(s)

KAJIURA ET AL.

Examiner

Susy N Tsang-Foster

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/125,452.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

1. The current reference to priority in the specification made in the amendment filed on 4/2/2001 is unclear to the Examiner because it contains no reference to the parent case as being a national stage phase of the corresponding PCT International Application. It is recommended to the applicants to rewrite the reference to priority in the first line of the specification as:

This application is a divisional of copending Application No. 09/125,452, filed August 19, 1998, now U.S. Patent No. 6,287,728 B1, the entire contents of which are hereby incorporated by reference and for which priority is claimed under 35 USC §120. Application No. 09/125,425 is the national phase under 35 USC §371 of prior PCT International Application No. PCT/JP97/04709 filed on December 19, 1997 which designated the United States of America, and claimed foreign priority to Application No. 8-343166 filed in Japan on December 24, 1996.

### ***Information Disclosure Statement***

2. The information disclosure statement filed on 4/2/2001 has been considered by the Examiner.

### ***Specification***

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

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The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

5. The abstract of the disclosure is objected to because it compares the instant invention with the prior art and it is not 50 to 150 words in length. The term "plate-like" is also unclear and should be written as "plate". Correction is required. See MPEP § 608.01(b).

6. The disclosure is objected to because of the following informalities:

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On page 4, line 2 of the second paragraph and throughout the specification, the term “plate-like” is unclear and should be rewritten as “plate-shaped”.

On page 7, line 28, the word “positive” should be changed to “negative” in order to maintain consistency in the disclosure.

On page 10, last line, the reference label “4-2” should be changed to “4-1” in order to maintain consistency in the disclosure.

On page 12, lines 2 and 13 and on page 16, line 24, the term “ground” appears to be mean “grinded.” It is unclear to the Examiner how the positive electrode can be formed if the article after being heat treated is “ground” to form a positive electrode since the article would be powder after being “ground” and the ground powder cannot be an electrode. It appears to the Examiner that the applicants mean the term “shaped” rather than “ground”.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1 and 2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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In claim 1, the limitation “temporarily calcining a raw material containing a lithium compound under an oxidizing atmosphere to form calcined powders” is indefinite because it is unclear to what extent the calcining is carried out when described by the term “temporarily”.

Claims depending from claims rejected under 35 USC 112, second paragraph are also rejected for the same.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. As best understood, claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by EP 709906 A1.

EP 709906 A1 discloses a process for producing a positive electrode for a secondary battery comprising the steps of:

mixing 0.5 mol lithium carbonate (a lithium compound) and 1 mol of cobalt carbonate and sintering (calcining) the raw material mixture in air (an oxidizing atmosphere) at a temperature of 900 degrees Celsius for 5 hours to produce  $\text{LiCoO}_2$  ( which is a calcined powder) which was then ball-milled to powders with a mean size of 10 microns (page 5, lines 30-35);

forming the  $\text{LiCoO}_2$  powders to a pellet shaped electrode after polyethylene powders were mixed in;

calcining (baking) the pellet (formed calcined powders) air (an oxidizing atmosphere) at a temperature of 900 degrees Celsius for 3 hours to produced a sintered mass of  $\text{LiCoO}_2$  (a porous sintered positive electrode) that is 15.5 mm in diameter with a volumetric density of 3.1 g/ml (page 5, lines 35-40).

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. As best understood, claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over EP 709906 A1 in view of Kamauchi et al. (US 5,538,814).

EP 709906 A1 discloses all the limitations of claim 2 except explicitly disclosing that the polyethylene powders having a diameter of 0.1 to 100 microns is mixed with the  $\text{LiCoO}_2$  powder prior to the calcining step.

EP 709906 A1 does disclose that the  $\text{LiCoO}_2$  powder has a mean particle size of 10 microns.

Kamauchi et al. teaches that the binder in a formed positive electrode has a particle size of 0.02 through 20 times that of the oxide powder of the positive electrode which prevents large, irregular pores from being formed in the positive electrode and allows for pores of appropriate dimensions to be formed in the positive electrode and formation of the appropriate pores increases the capacity of the positive electrode, prevent cracks and defects and improves the formability into a positive electrode.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use polyethylene powder having a particle size of from 0.2 microns to 200 microns in forming the molded positive electrode product of EP 709906 A1 prior to sintering the molded positive electrode product to form the sintered porous positive electrode because a binder that is 0.02 to 20 times the particle size of the oxide of the positive electrode allows for pores of appropriate dimensions to be formed in the positive electrode and formation of the appropriate pores increases the capacity of the positive electrode, prevent cracks and defects and improves the formability into a positive electrode.

### ***Conclusion***

13. Any inquiry concerning this communication or earlier communications should be directed to examiner Susy Tsang-Foster, Ph.D. whose telephone number is (703) 305-0588. The examiner can normally be reached on Monday through Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at (703) 308-2383. The phone number for the organization where this application or proceeding is assigned is (703) 305-5900.

The fax phone numbers for the organization where this application or proceeding is assigned is (703) 872-9310 for regular communications and (703) 872-9311 for After-Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

st/07 November 2002

*Susy Tsang-Foster*